PROFILE '90

Educational Indicators

Government of Newfoundland and Labrador
Department of Education
Division of Evaluation

Authorized by the Minister

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Department of Education
Government of Newfoundland and Labrador

Honourable Dr. Philip J. Warren
Minister of Education

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FOREWORD

If any organization or system is to survive and succeed, it must know itself. It must know if its programs and services are appropriate to the needs of its client population, and whether they reflect a standard comparable to that of other local, national and international organizations that offer the same services. As well, it must know if it is operating efficiently and effectively within the societal and organizational framework in which it exists. In other words, it must know if its goals are being achieved and if these goals are current and appropriate to today's changing needs.

The educational system in this province is such an organization. The teachers, principals and administrators provide the structure of the organization; the students are the client population. Within this system, students are entitled to the best possible educational environment that our resources, human and financial, can offer. We have to direct the use of these resources so that our primary focus is always on the learner.

The only way to know if the best level of service and programming is being achieved is by measuring, monitoring, reviewing and evaluating. Some of this is done when programs are being developed, some when they are being implemented, and some on a regular and cyclical basis after they are in place. Additionally, if a system is to continue to meet changing needs, there has to be a mechanism in place that continually questions the philosophies and assumptions on which the system is based.

Profile '90 is major step towards meeting these challenges. It has been prepared, partly as a response to the need for an improved system of public accountability. The information contained in this publication provides a comprehensive survey of the educational system in this province from three perspectives: involvement, achievement and opinion.

Unless otherwise specified, the sources of all data used in this document are the computerized data bases of the Department of Education.

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1. INTRODUCTION

1.1 Why a provincial profile?

A performance indicator can be defined as an item of information collected at regular intervals to track the effectiveness of a system. Educational performance indicators tell us how close we have come to achieving our goals. Using indicators is analogous to having a medical checkup. Just as a doctor can use medical tests to assess the health of an individual, so indicators in education can help us know how well our schools are doing. Comparisons can be made from one year to another and from one geographical area to another.

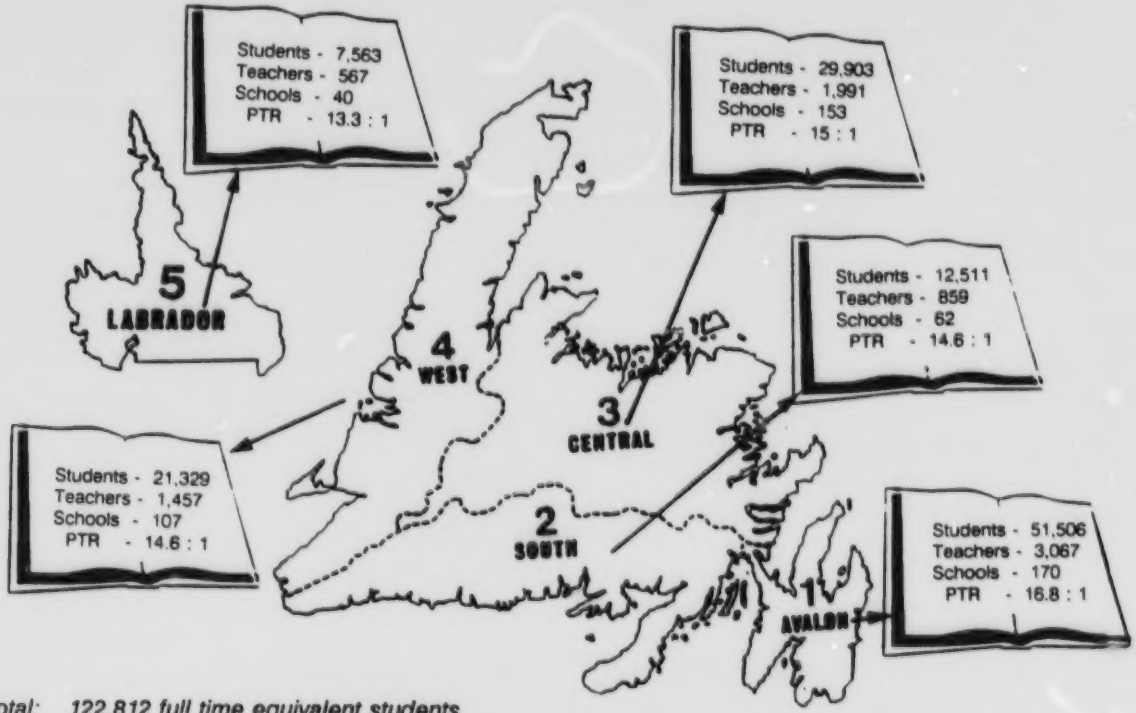
With a good system of performance indicators, evaluation enables us to judge whether or not a system is effective, efficient and accountable. Evaluation takes many forms and can vary considerably in scope; it is unquestionably beneficial. If we are to meet the demands society is placing on the educational system, we have no choice but to evaluate it and to use the information for decision making. If we don't know where we are, we can never determine to any degree of certainty how to get to where we want to go. In fact, unless we have accurate information about the system, it is not possible to know where we need to go in the first place. It is our hope that this profile will provide some important information about the following:

- how successful we are in getting our students through the system to graduation
- how well our students are achieving
- how students and others feel about the quality of their school experience
- how society feels about the degree to which we are meeting its expectations

This profile presents a snapshot of education in Newfoundland today. It makes some comparisons with the past and looks towards the future. Information we collect today about student participation, achievement, attitudes and values will provide a sound basis for the decisions which will affect our future.

1. INTRODUCTION

1.2 How are our students, teachers and schools distributed?



Total: 122,812 full time equivalent students
127,029 actual students (kindergarten students attend half-time)

1.3 How are we organized?

The Province of Newfoundland has a denominational education system. Under this arrangement, responsibility for education is shared between the provincial government, through the Department of Education, and the major Christian churches through the denominational education councils. There are three such councils: the Roman Catholic Education Council; the Integrated Education Council, which comprises the Anglican, Moravian, Presbyterian, Salvation Army and United churches; and the Pentecostal Assemblies Education Council. The Seventh-Day Adventist church also operates a school system, but it has relatively few students and is not part of the denominational education council arrangement.

Geographically the school system has been divided into five regions. Within these regions there are 29 school boards, which administer all matters pertaining to the day-to-day operation of schools. This includes the organization and delivery of elementary and secondary education within their districts, the employment of teachers and support staff, the establishment of attendance zones, the repair and maintenance of school buildings and the arrangement of pupil transportation.

Responsibility for all courses of study (except religion) and the selection and acquisition of suitable texts and support materials for the school system rests with the Department of Education. The Department directs the overall delivery of special education, school services, achievement monitoring, program evaluation, testing and high school certification. The Department is also responsible for the maintenance of educational data bases and record systems.

There are 532 schools in the Province, of which 57 percent are Integrated, 33.6 percent Roman Catholic, 8 percent Pentecostal, and 1.4 percent Seventh-Day Adventist. In addition, there are six schools classified as either private, native, institutional or Social Services schools. As of September, 1990, the total student enrolment for all schools in the

1. INTRODUCTION

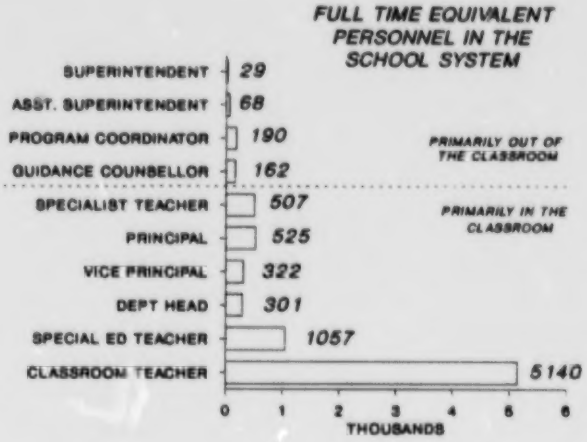
province was 127,029. Of these, 51.3 percent were boys and 48.7 percent were girls.

The number of educators at the school level in the province currently stands at 8,015[1]. This represents a pupil-teacher ratio of 15.3 : 1[1]. Of course the actual pupil-teacher ratio will vary somewhat from region to region and district to district.

All teaching positions require highly specialized and qualified teachers in their field. These include principals and vice-principals who may teach in addition to administering the schools; department heads; specialist teachers; guidance counsellors; special education teachers and classroom teachers. Special education teachers include teachers of the visually and hearing impaired, teachers of students with behavioral disorders, teachers of multi-handicapped students, educational psychologists and speech pathologists.

An additional 285 educators are administrators at the school district level. These include superintendents, assistant superintendents and program coordinators.

1 Full Time Equivalent



▲ *Figure 1.3.1: Full time equivalent personnel in the school system.*

2. INVOLVEMENT

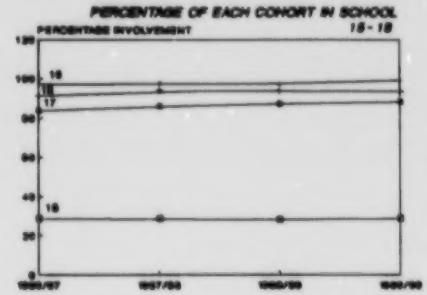
2.1 Participation: How do our schools measure up?

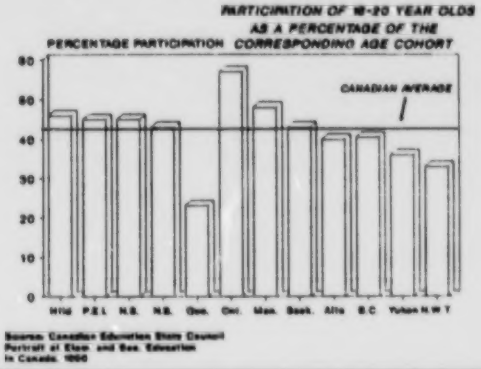
School attendance by students of the age group 15-18 can be expressed as a percentage of the total population of the corresponding age cohort as determined by Statistics Canada.

Participation of 16-year-olds has gradually increased from 91.3% in 1986-7 to 93.4% in the most recent school year. A similar, slightly more pronounced increase is found for the 17-year-old group; from 83.6% to 88% over the same period. The 18-year-old cohort, the size of which has remained fairly constant over the past five years, is made up predominantly of students who are either in their fourth year of high school or who have repeated a year somewhere between kindergarten and grade 9.

In this province, participation of students aged 16 and over, compares very favourably with that of other provinces that have a kindergarten to grade 12 system[1]. With the exception of Manitoba, there is a higher percentage of this cohort in school in Newfoundland than in any other province.

1 Ontario has a K-13 system; Quebec has a K-11 system.



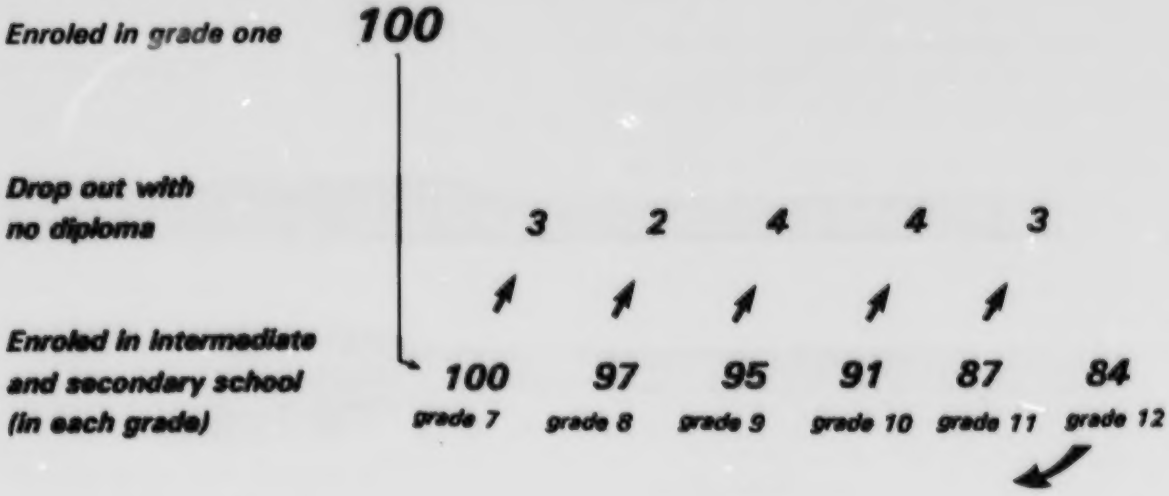


▲ *Figure 2.1.1 (Top): Percentage of each age cohort in school 15-18.*

▲ *Figure 2.1.2 (Bottom): Enrolment of 16-20 year olds as a percentage of corresponding cohort, 1988-89.*

2. INVOLVEMENT

2.2 What happens to 100 students entering grade one?

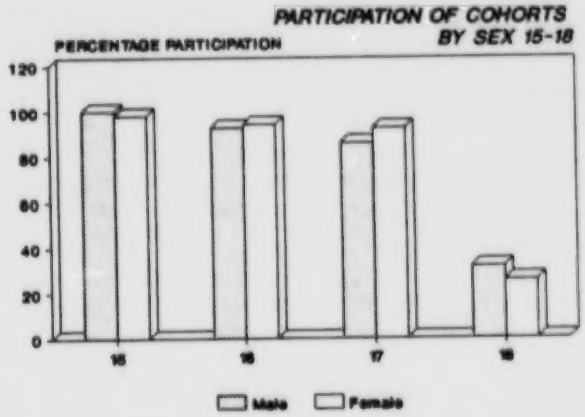


1 estimated – some of those who are not eligible to graduate will have dropped out during the year; others will have failed courses in earlier grades

* adjusted for net migration

2.3 Participation: Do both sexes participate equally?

Below the compulsory school age of 16, slightly fewer female students are enroled in school. This is not surprising; more boys than girls enrol in kindergarten. For 16- and 17-year-olds the situation is reversed; there is a slightly higher participation of female students, the difference being more pronounced in the older cohort. This indicates that a greater number of male students drop out of school before completing their high school education. In the 18-year-old cohort, however, the situation is reversed again. More male students remain in school, either for a fourth year of high school or as a result of repeating a year earlier in their school career.

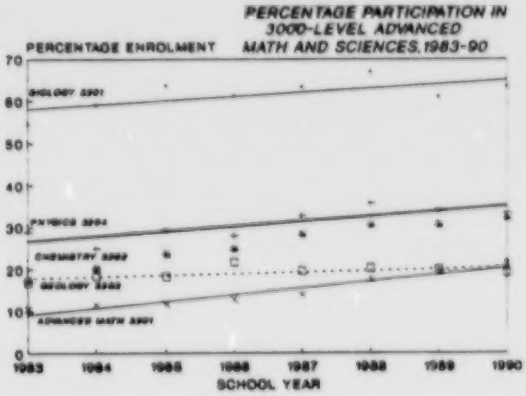


▸ *Figure 2.3.1 Percentage of different age cohorts participating by sex.*

2.4 Participation: To what extent are our students participating and succeeding in mathematics and science?

With the publication of the report of the Task Force on Mathematics and Science Education in 1989 considerable concern has been raised over the participation of students in advanced mathematics and science.

Providing a measure of participation in the area of science courses can pose certain difficulties. Students may complete 2000-level courses in any year of their three year high school program. Thus obtaining a measure of participation in science courses at the 2000-level would call for a number of assumptions that may influence the validity and reliability of the data. Participation in 3000-level science courses can be calculated, however, with relatively few assumptions and provide data estimates which are believed to be considerably more accurate. Since virtually all students complete 3000-level science courses in their second (grade 11) or third (grade 12) year of high school, the average of the enrolments in these two grades serves as a suitable denominator for calculating participation rates in any given year. As a result we have chosen to focus on the participation of students in 3000-level science courses as an indicator of the output of the education system in these subject areas. Participation rate has therefore been defined as the number of student enrolments in the respective science course as

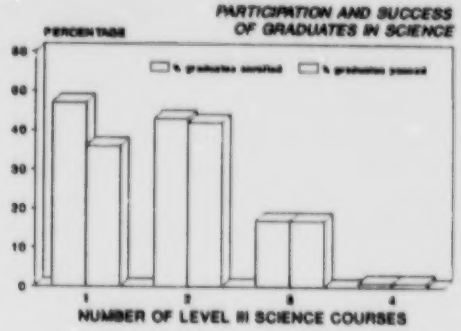


▲ *Figure 2.4.1: Percentage participation in Advanced Mathematics and sciences, 1983-1990.*

a percentage of the average of grade 11 and grade 12 enrolment. The data clearly shows that participation rates for all the sciences have been increasing at a steady rate since the courses were first offered in the 1982-83 school year. The most pronounced increases in were in Chemistry 3202 (from 17.4% to 32%) and Biology 3201 (from 54.4% to 63.3%).

Recently the enrolment in Advanced Mathematics 3201 has become a particular concern of the educational community. Research from the postsecondary sector indicates that students have much greater success in university and college level mathematics courses when they have completed the Advanced Mathematics 3201. The data presented here shows a dramatic increase in the participation rate for this course from 10.3% in 1982-83 to 21.2% in the current school year.

A further useful output indicator is the percentage of students who graduate with varying numbers of 3000-level science courses. Although students only require two science credits to graduate, over 60% of our graduates obtain two or more 3000-level science courses. Presumably, these students have also completed the corresponding prerequisite 2000-level courses, to give them a minimum of eight science credits in total. Fewer than 5% of graduates do not successfully complete a 3000-level science course. This means that approximately 95% of our graduates have at least four science credits.



▲ *Figure 2.4.2 Percentage of graduates with different numbers of 3000-level science courses, 1990.*

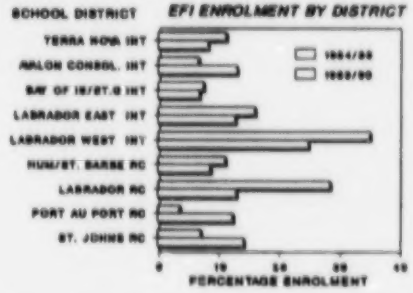
2.5 Participation: How many students are involved in early French immersion?

Over the last two decades, as most of the schools in the Province underwent a period of enrolment decline, the one segment of the school system experiencing growth was French immersion. French immersion is a program designed for English-speaking students in the French language. The main goal of the French immersion program is to provide students with an educational program, consistent with the aims and objectives of education in Newfoundland and Labrador, that will enable them to function in French upon completion of high school.

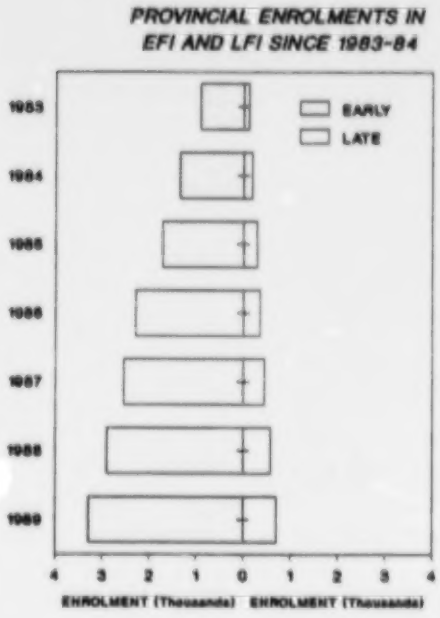
The number of school districts offering early French immersion programs has been steadily increasing since 1976, when the first kindergarten classes (totalling 56 students) received instruction in French. Today, 12 school districts offer early French immersion programs, with a total enrolment of 3,488.

Recently, however, the demand for French immersion programs in some school districts appears to have reached a plateau and is declining. When comparing the enrolment of kindergarten French immersion students as a percentage of the total kindergarten enrolment in 1989-90 with that of 1984-85, only three school districts show an increase. Overall enrolment continues to grow, however, as more school districts offer French immersion and as students from earlier years move through the system.

▼ *Figure 2.5.1: Number of kindergarten early French immersion students (EFI) as a percentage of the total number of kindergarten students by district for 1984-85 and 1988-89.*



2.6 Participation: How many students are involved in late French immersion?



After several years of successful early French immersion, in 1979 schools began to offer a late French immersion program. The late French immersion program involves varying degrees of French language instruction as the student progresses from grade 7 to grade 12. The Policy Advisory Committee on French Programs (1986) recommended that late French immersion involve 70% French instruction in grades 7 and 8; the percentage decreasing somewhat as students progress through the grade levels.

Five school districts currently offer late French immersion, with a total enrolment of 701.

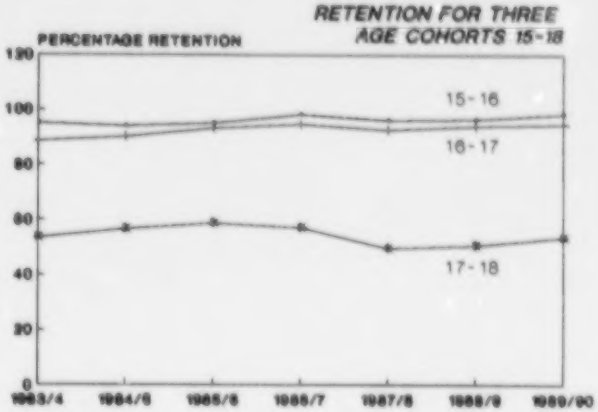
◂ *Figure 2.6.1: Provincial enrolments in early and late French immersion programs since 1983-84.*

2.7 Retention: What percentage of students are still in school the following year?

The number of 15-, 16- or 17-year- olds in any year who are still in school the following year is a measure of school retention. To account for students who have entered or left the province during the intervening year, the figures are adjusted for net migration.

Over the past number of years, the percentage of 15-year-olds who are still in school the following year has been high and fairly stable, ranging from 94% to 98% for 1989/90. During the same period, however, the percentage of 16-year-olds retained has been slightly lower but shows an upward trend from 88.5% to 94.6%. It should be noted, however, that in 1987-88 the minimum school leaving age was raised to 16 from 15.

After adjusting the retention from age 17 to 18 to account for students who graduated at 17, there is no apparent trend in retention rate.



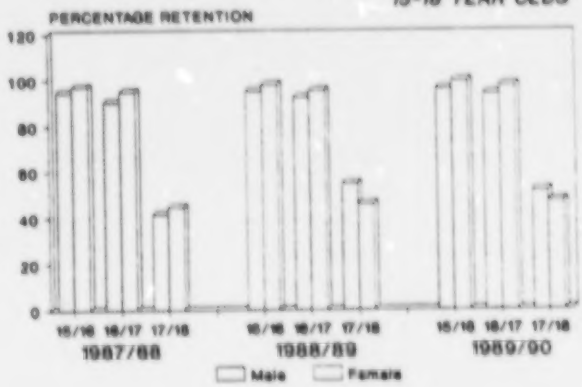
▲ *Figure 2.7.1 Percentage retention for different cohorts 15-18.*

Comparing the retention rates of male and female students from 1987-1990 reveals some differences over time and between the cohorts.

The pattern of retention for male and female students is the same over the three years for the two younger cohorts, 15-16 and 16-17. In each case slightly more female students than male students remain in school. For 1988/89 and 1989/90 however the pattern of differences is reversed for the oldest cohort, 17-18, with a higher percentage of male students being retained. This difference is marginally lower for the most recent year.

Assuming that there is no reason for male students to be older than their female peers and have a tendency to graduate at 18 rather than 17, these differences suggest that at least in the cohorts for the past two years more male students than female took more than thirteen years to complete the K - 12 sequence. This is supported by the fact that the ratio of males to females in the fourth year of high school is 4:3.

RETENTION BY COHORT BY SEX
15-18 YEAR OLDS



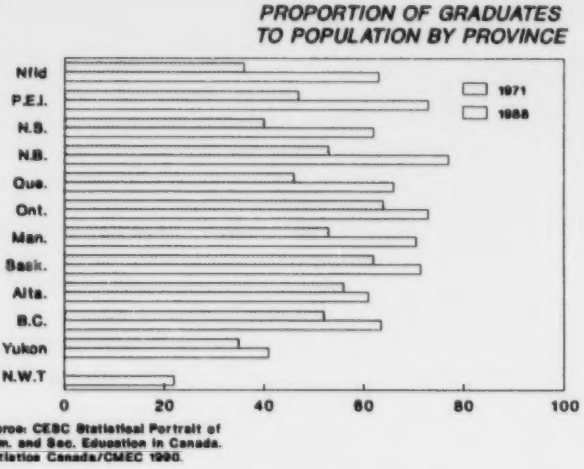
▲ *Figure 2.7.2: Retention by cohort by sex 15-18, 1988-1990.*

2. INVOLVEMENT

2.8 Graduation: How do our rates compare with the rest of Canada?

Graduation from high school is a good indicator of the output of any educational system. Across Canada, rates have been slowly increasing over the past two decades, reflecting a general trend for students to remain in school longer. In 1971, national graduation rates ranged from 40-50% of the corresponding age cohort (17 in Quebec and 18 elswhere); in 1988, the last year for which national figures are available, the range was 60%-75%.

A breakdown of similarly calculated graduation rates by province shows that whereas in 1971 under the old program our rate was the lowest in the country, in 1988 it had improved considerably such that our rates were on a par with Alberta and British Columbia, the only two other provinces with a kindergarten to grade 12 system that have extensive public examinations.

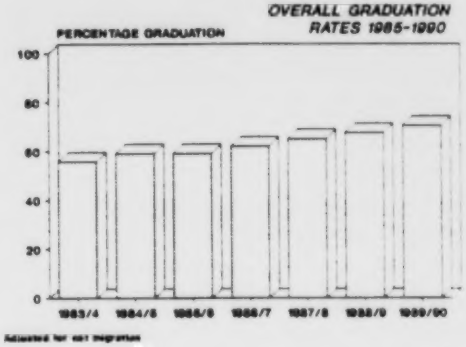


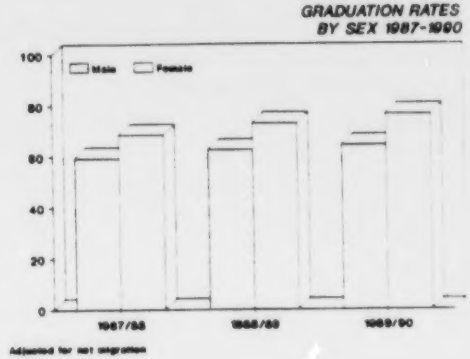
▸ *Figure 2.8.1: Proportion of high school graduates to population age 17 or 18 by province, 1971 and 1988.*

2.9 Graduation: Have rates improved over recent years?

Another common way of expressing graduation rates is as a percentage of students who were enroled in grade 8 four years previously. This indicator requires, however, that the denominator of the calculation be adjusted to accommodate students who either entered or left the Province between grade 8 and grade 12. Figure 2.9.1 shows our graduation rate, calculated in this manner, from 1983-84 to 1989-90. As can be seen, there has been a gradual increase over this time period from 55.8% in 1983-84 to 70.4% in 1989-90.

Comparing graduation rates for male and female students has been possible only for the past three years. During this time graduation rates have risen steadily, with a substantial difference in rate in favour of female students.





▸ *Figure 2.9.1 (Top): Overall graduation rates, 1983-84 to 1989-90.*

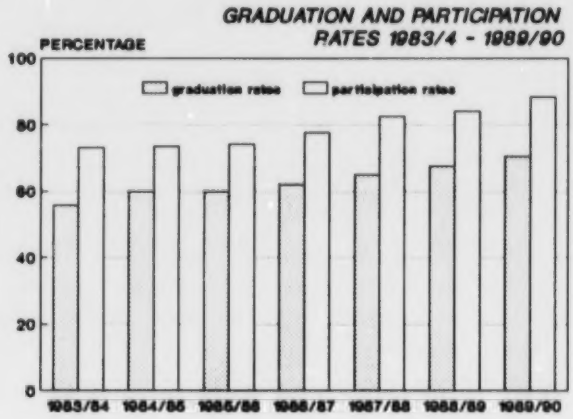
▸ *Figure 2.9.2 (Bottom): Graduation rates by sex, 1987-1990.*

2.10 Graduation: How does it compare with participation?

Since 1983, there has been a steady increase in both high school graduation rates and participation rates for the last year of the high school program.

In the early years of the decade only 73% of students enroled in grade 8 were still in school in grade 12. By the late eighties, over 88% (after adjusting for those who entered or left the system) of grade 8 students remained in school for four more years.

Accompanying this rise in participation rates is an increase in the number of grade 8 students who graduate from high school four years later. In 1983, the initial graduating class from the revised program, comprised just over half (55.8%) of the grade 8 students enroled in 1979. During the remainder of the decade this figure rose to 70.4%. In 1990, of those students who remained in school to grade 12, and were eligible to graduate, 83% were successful.



▸ *Figure 2.10.1: A comparison of grade 12 participation and graduation rates 1983/4- 1989/90.*

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3.1 CTBS: How do our students compare nationally?

The Canadian Tests of Basic Skills (CTBS) are extensive standardized tests that measure student performance in a number of major academic areas. In the 1974-75 school year, the Department of Education, using the CTBS, introduced an Elementary Standardized Testing Program. This program involves the administration of the CTBS on a yearly rotated basis for grade 4, 6, and 8 students in all schools. The main purposes of the program are as follows:

1. To compare our students' achievement of basic skills with national averages.

2. To compare achievement across school boards in the Province.

3. To identify strengths and weaknesses in our instructional programs.

The High School Standardized Testing Program was introduced in 1982. Using an advanced edition of the CTBS, the High School Multilevel Battery, the program assesses students' achievement in their graduating year. The tests are administered periodically to a random sample of approximately 1,000 Grade 12 students, stratified by school size and religious denomination.

The CTBS are norm-referenced tests. The performance of Newfoundland students is compared to that of a standardized sample of some 3,200 students from across the country. Thus performance on the CTBS is expressed in terms of how well our students did in comparison to how well the Canadian norming sample did. Scores on the test are reported in two forms: grade equivalents and national percentile rank (NPR). Grade equivalents essentially describe student performance in terms of the approximate grade level at which the performance would be average. For example, a grade equivalent of 8-2 means the students are performing at a level equivalent to the second month of grade 8. On the other hand percentile rank refers to the percentage of students in the standardization sample who earned lower scores on the test. For example,

a percentile rank of 45 indicates that 45 percent of the students in the standardization sample earned lower scores on the test. On any norm-referenced test the average percentile rank is 50, while students scoring between 40 and 60 are considered to be in the normal range. In the past, grade equivalents have been criticized because they are open to misinterpretation. In this profile, all results are reported as percentile ranks.

The CTBS are divided into a number of subtests. Grade 4, 6 and 8 students are tested on vocabulary, reading comprehension, language, work study and mathematics. Grade 12 students are tested on reading comprehension, written expression, using sources of information and mathematics. In addition, a composite score is provided for all grades; this indicates overall achievement in all subtests.

Overall Results

The graphs of composite and individual subtest results illustrate that performance on the CTBS of students in grades 4, 6 and 8 has been somewhat inconsistent over the last 15 years. From 1974 to 1980, our students made significant, consistent improvements in virtually all subtest areas at all grade levels. This period was followed by an era of slight decline and levelling off in grades 4 and 6. However in grade 8, the period from 1980-1986 shows that scores on all subtests regressed substantially to approximate those of the mid-seventies. This downward trend in achievement was not unique to this Province; it seems to have been a nation-wide phenomenon. However, grade 8 performance in the most recent CTBS testing indicates a reversal of the downward trend; the overall result on the battery of tests is at its second highest point in the history of the standardized testing program.

Student performance by subtest, when examined over time, shows considerable disparity among individual subtest areas. Vocabulary and reading comprehension have historically been two areas of particular concern showing low levels of student achievement. Achievement in mathematics, particularly mathematical computation, the mechanical skills of mathematics, have been very close to the national norms.

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Over the history of CTBS testing, the following provincial improvements in composite performance can be reported:

GRADE 4(1975) ----------▸ *GRADE 4(1990)*
NPR = 38 *NPR = 43*

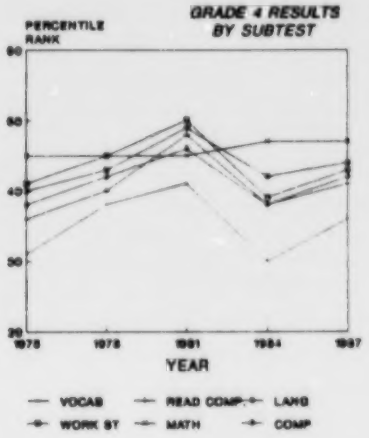
GRADE 6(1976) ----------▸ *GRADE 6(1988)*
NPR = 36 *NPR = 45*

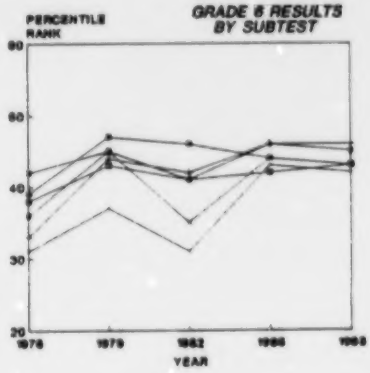
GRADE 8(1974) ----------▸ *GRADE 8(1989)*
NPR = 27 *NPR = 40*

GRADE 11(1982)* ----------▸ *GRADE 12(1989)*
NPR = 25 *NPR = 43*

** graduating year prior to introduction of reorganized high school program*

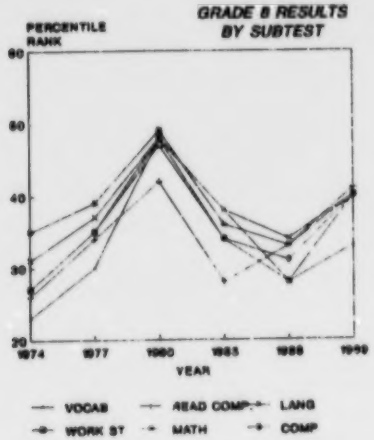
NPR - national percentile rank

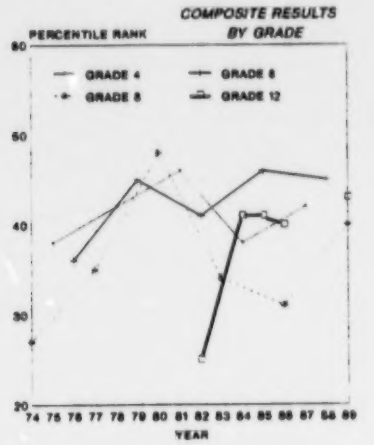




▸ *Figure 3.1.1 (Top): CTBS grade 4 NPR by subtest over time.*

▸ *Figure 3.1.2 (Bottom): CTBS grade 6 NPR by subtest over time.*





School Size and Achievement

The CTBS categorizes student performance according to school size; the number of students in a school registered in the grade being tested. There are five categories of size: 1-19, 20-39, 40-74, 75-129 and 130 and above.

Examination of the data suggests a strong positive correlation between school size and student achievement. In other words the students in larger schools generally tend to outperform those in smaller schools (Figures 3.1.5 - 3.1.8). With few exceptions, at all grade levels scores are higher in larger schools. For example, in 1990 a random sample of grade 12 students from across the Province wrote the grade 12 CTBS. In comparing large and small school performance, there is a spread of 25 percentile points from an NPR of 33 for the small schools to 58 for the large schools.

◂ *Figure 3.1.3 (Top): CTBS grade 8 NPR by subtest over time.*

◂ *Figure 3.1.4 (Bottom): CTBS composite NPR by grade over time.*

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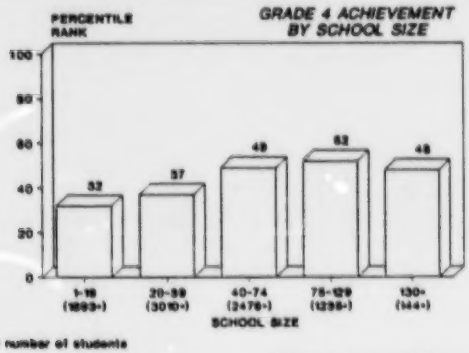
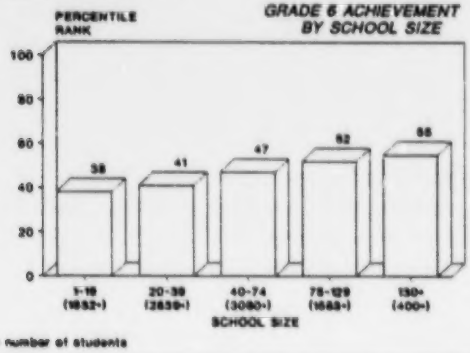
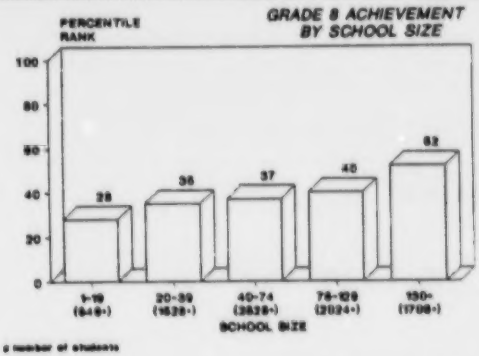
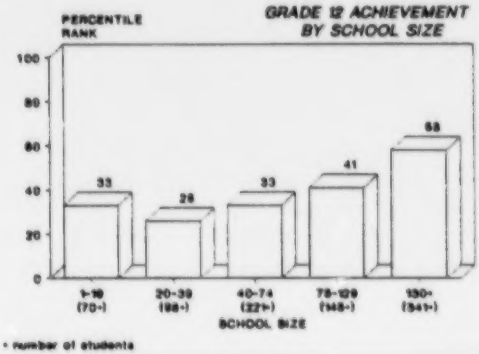




▲ *Figure 3.1.5 (Top): 1987 grade 4 CTBS composite NPR by school size.*

▲ *Figure 3.1.6 (Bottom): 1988 grade 6 CTBS composite NPR by school size.*





▲ *Figure 3.1.7 (Top): 1989 grade 8 CTBS composite NPR by school size.*

▲ *Figure 3.1.8 (Bottom): 1990 grade 12 (sample) CTBS composite NPR by school size.*

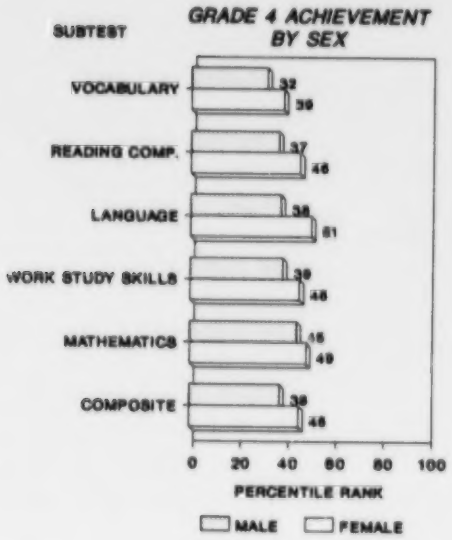
Similar examples of these differences can be seen in the elementary testing program. Schools with 75-129 grade 4 students, 75 or more grade 6 students and 130 or more grade 8 students performed above the 50th percentile in the most recent CTBS testing.

The relationship between achievement and school size has been discussed in the literature. Riggs (1987), in the ***Report of the Small Schools Study Project,*** concludes from a review of the literature that no conclusive evidence exists to suggest that school size, in itself, is accountable for these differences. It is virtually impossible to separate the various influences (such as the urban/rural nature of the schools, etc.), contributing to student achievement.

Most of the research suggests that achievement differences between large and small schools could be attributed to factors other than school size. For example, large schools tend to be located in large communities and have, for a host of reasons, traditionally scored higher than schools from rural areas on various measures of student achievement. In the most recent testing students in urban areas scored 18 percentile points higher than their rural counterparts at the grade 4 level, 13 points higher in grade 6 and 15 points higher in grade 8.

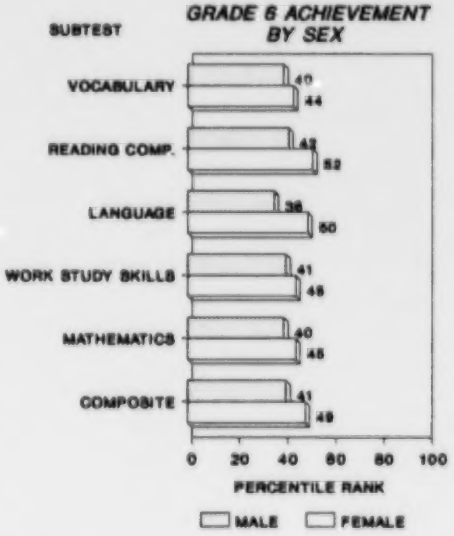
Sex Differences in Achievement

Figures 3.1.9 - 3.1.12 show the NPR by sex for the most recent CTBS testings. In grades 4, 6 and 8, girls consistently outperformed boys on all subtests with the exception of the vocabulary subtest in grade 8, where the scores were equal. By grade 12 however boys appear to catch up; girls scored higher on only the written expression subtest. Although the final composite score for boys and girls was equal in the 1990 CTBS, boys scored significantly higher in the mathematics subtest (yet girls still outperform boys in 3000 level advanced and academic mathematics) and marginally higher in the using sources of information subtest. These difference in mathematics achievement between boys and girls have been the subject of a 1989 Department of Education report entitled *Sex-related Differences in Mathematics*. The report describes trends in mathematics performance for boys and girls and provides a detailed analysis of these differences.



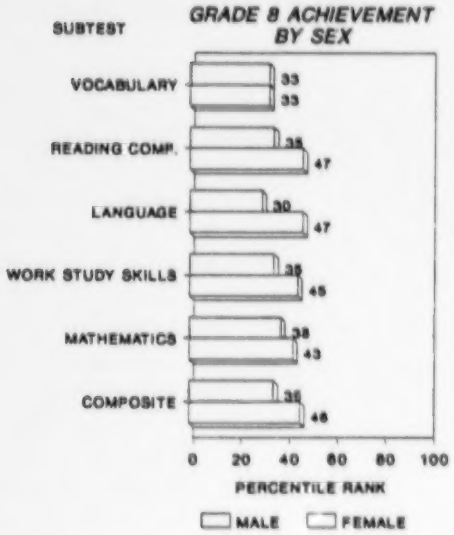
n = 8758

▲ *Figure 3.1.9 (Top): 1987 grade 4 CTBS NPR by subtest and sex.*



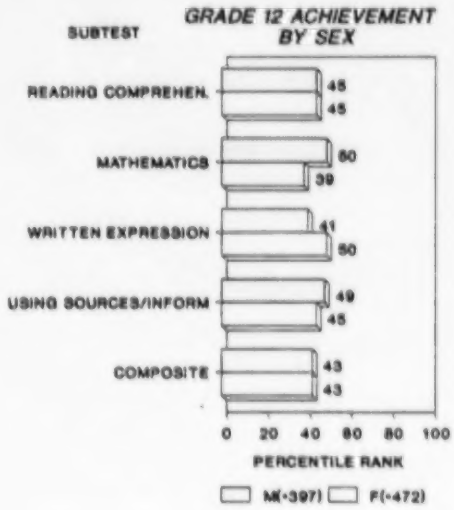
n = 8835

▲ *Figure 3.1.10 (Bottom): 1988 grade 6 CTBS NPR by subtest and sex.*



n = 8732

▲ *Figure 3.1.11 (Top): 1989 grade 8 CTBS NPR by subtest and sex.*



= number of students

▲ *Figure 3.1.12 (Bottom): 1990 grade 12 (sample) CTBS NPR by subtest and sex.*

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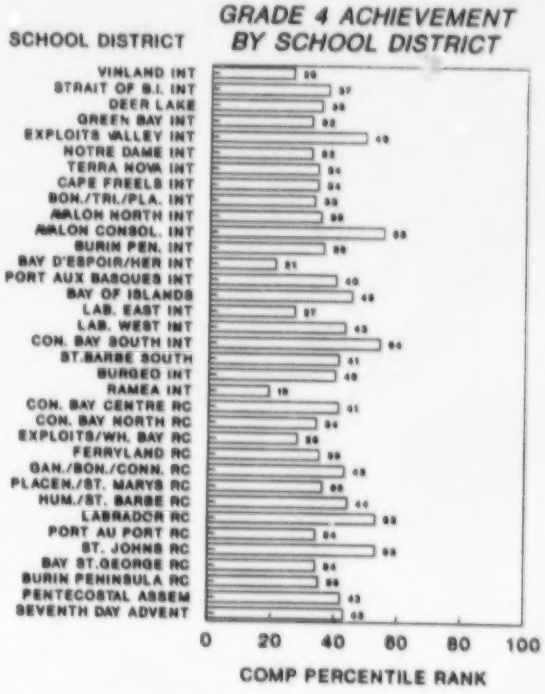
Achievement by School District

Results from the Elementary Standards Testing Program are reported yearly by school district. This type of information is important for two reasons. First, from a public accountability perspective, this type of information lets the community know how well our schools measure up to national standards. Second, school districts need to have this type of data as a bench mark against which to evaluate themselves. The CTBS composite percentile rank for grades 4, 6 and 8 by school district for the most recent testing are presented in Figures 3.1.13 - 3.1.15. Grade 12 data is not included because the grade 12 random sample is not stratified by board.



▸ *Figure 3.1.13: 1987 grade 4 CTBS NPR by school district.*

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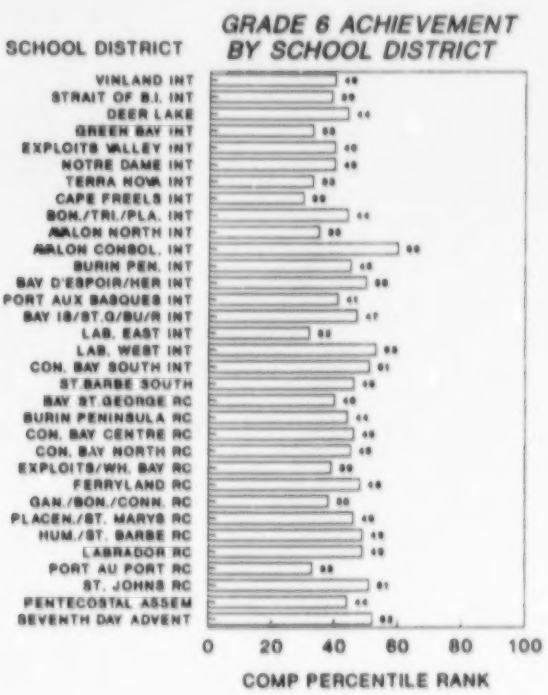
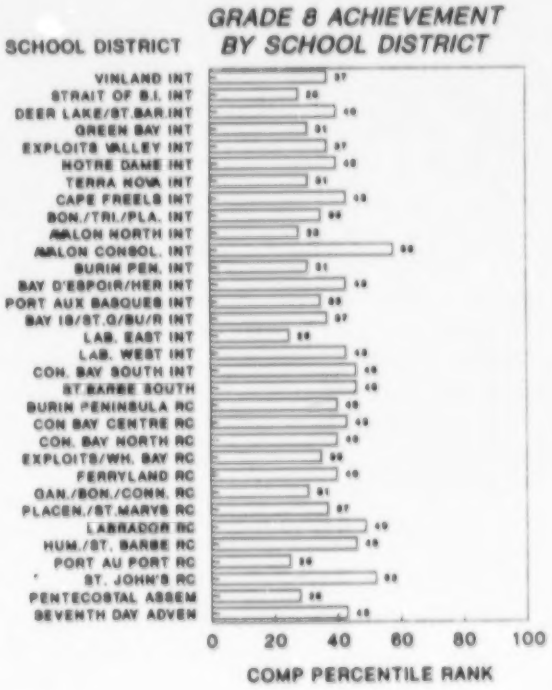


▲ *Figure 3.1.14: 1988 grade 6 CTBS NPR by school district.*



▲ *Figure 3.1.15 : 1989 grade 8 CTBS NPR by school district.*

3.2 What do our elementary students know about science?

During the late seventies and the eighties science instruction at the primary and elementary levels was a main focus of the Department of Education. Curriculum changes were made to increase the level of 'hands-on' science instruction received by students. To evaluate the effectiveness of these program changes, a criterion-referenced test, the Elementary Science Assessment, was developed and administered to grade 6 students in 1987 and again in 1990. The items on this instrument measured attitudes towards science and academic achievement in science. The section that measured achievement contained items which could be classified into four broad curriculum areas: process skills, life science, physical science and earth science. Student performance is reported both provincially and by district. All results are reported as a percentage of items correct.

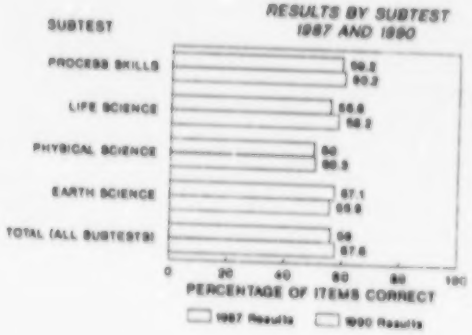


Figure 3.2.1: 1987 and 1990 Elementary Science Assessment (ESA) provincial results by subtest. ▸

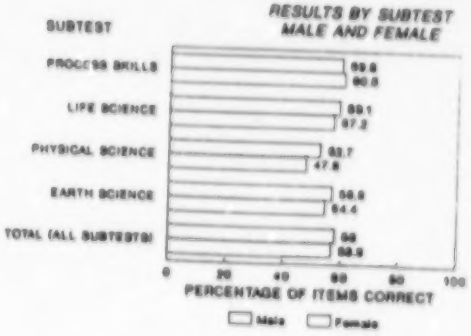


Figure 3.2.2: 1990 Male/Female ESA results by subtest. ▸

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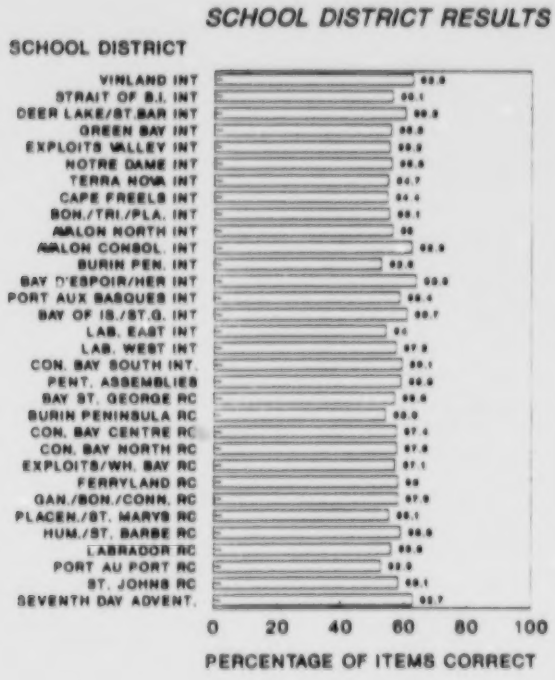

Achievement in science, based on the results of this assessment, improved marginally from 1987 to 1990 with small gains in all areas except earth science. The provincial average in 1987 was 56.0% increasing to 57.5% in 1990. A look at performance in the subtests indicates that our students have the least difficulty with science process items and the most difficulty with the physical science component of the assessment. Achievement by sex in this assessment shows very little difference. Overall boys performed marginally better than girls in all subtests except process skills with the difference most pronounced in the area of physical science.

A point worthy of note is that in this test which is curriculum based, there appears to be much less variation among school district results than in the norm-referenced CTBS.

« Figure 3.2.3: 1990 ESA results by school district. Note that recent amalgamation of school districts has resulted in the following districts being merged:

- *Vinland Integrated and Strait of B.I. Integrated*
- *Terra Nova Integrated and Cape Freels Integrated*
- *Bay St. George R.C. and Port au Port R.C.*

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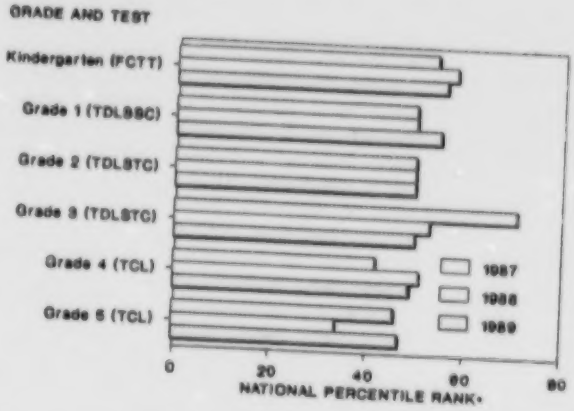
3.3 How have our French immersion students progressed?

French immersion programs in Newfoundland and Labrador have been evaluated on a regular basis since the first immersion program was established in 1975. French language achievement is measured using the French Comprehension Test (FCT), the French Diagnostic Reading Test (Tests diagnostique de Lecture - TDL) and the Reading Comprehension Test (Test de comprehension en lecture - TCL). The FCT is designed to measure the French comprehension skills of children completing the kindergarten year of a complete French immersion program. The TDL and the TCL are primarily diagnostic testing instruments. The TDL is administered to students in grades 1,2 and 3; students in grades 4-6 are tested using the TCL. All of these tests provide a means whereby the academic performance of French immersion students can be assessed and comparisons made with other French immersion students in the province and with the norming group.



▲ *Figure 3.3.1: Provincial percentile ranks from French language comprehension tests for kindergarten to grade 5 students for the years 1987, 1988 and 1989. Since enrolment at the grade 6 level provincially is low and regionalized these results are not presented.*

FCTT - French Comprehension Test Total
TDLSSC - Test Diagnostique de Lecture: Sentence and Story Comprehension Subtest
TDLSTC - Test Diagnostique de Lecture: Story Comprehension Subtest
TCL - Test de Comprehension en Lecture

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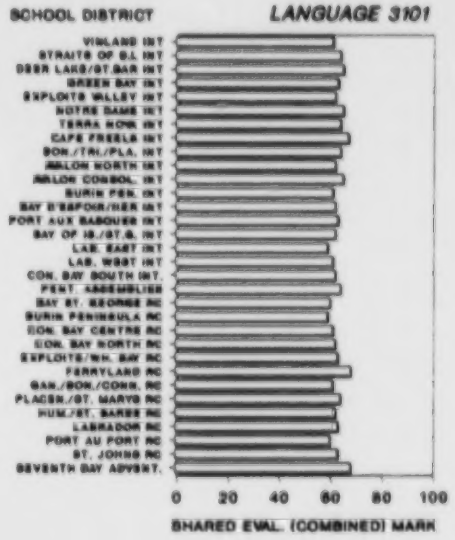
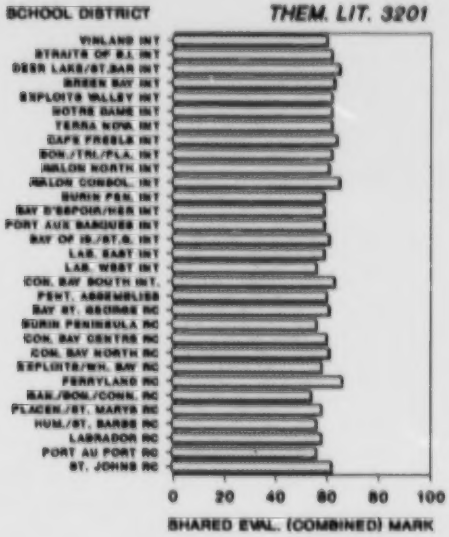
3.4 How do our senior students perform on public examinations?

Historically the system of public examinations has existed in this province for a number of 3000-level courses. A public examination is a year-end examination in certain third year level high school courses set and administered by the Department of Education. The grades received on the public examinations are used on a 50/50 basis, with the school evaluation, in the determination of the final results. Examinations are written in June and graded by a panel of subject area teachers. In 1990 public examinations were written in 33 courses. This number has since been reduced to 19.

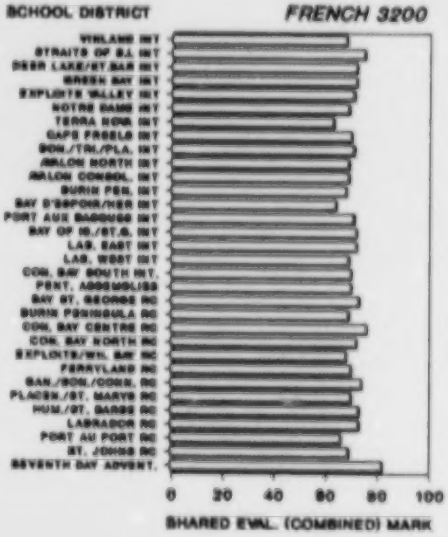
Figures 3.4.1 - 3.4.10 illustrate student achievement based on a shared evaluation in selected courses by school district for the 1989-90 school year (blank spaces indicate the course was not offered in 1990). Although there is not a great deal of difference in most subjects when reported by school district, there are substantial differences when such results are reported by school.



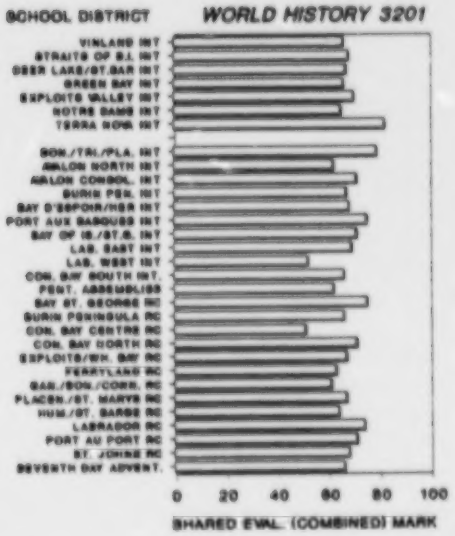
▸ *Figure 3.4.1: 1990 final shared evaluation (combined) average mark for Language 3101 by school district.*



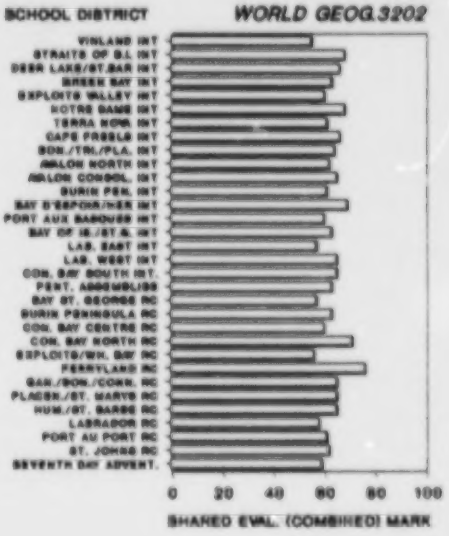
▲ *Figure 3.4.2: 1990 final shared evaluation (comb average mark for Thematic Literature 3201 by s district.* *oined) chool*



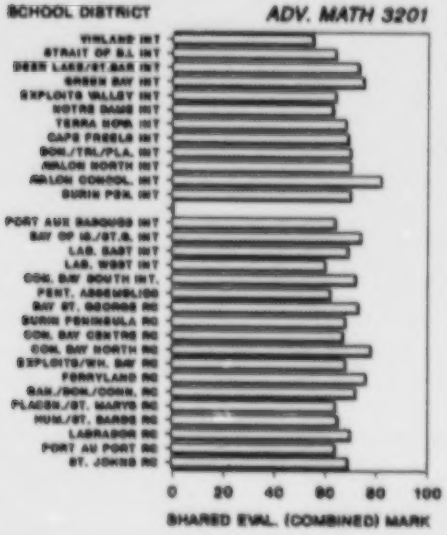
▲ *Figure 3.4.3: 1990 final shared evaluation (combined) average mark for French 3200 by school district.*



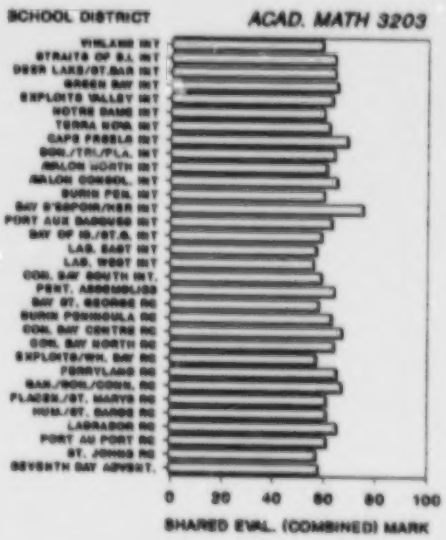
▲ *Figure 3.4.4: 1990 final shared evaluation (combined) average mark for World History 3201 by school district.*



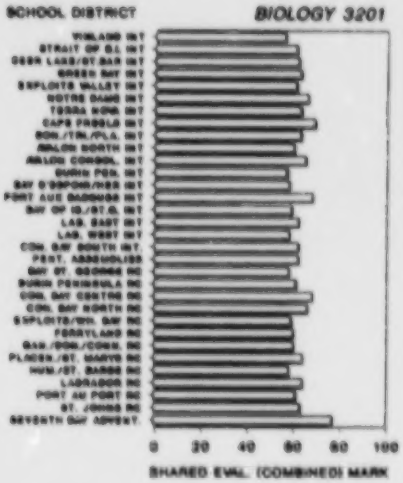
▲ *Figure 3.4.5: 1990 final shared evaluation (combined) average mark for World Geography 3202 by school district.*



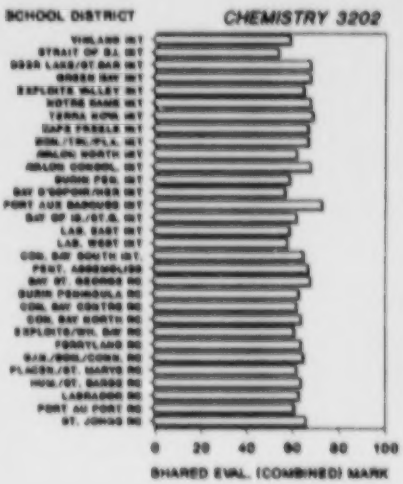
▲ *Figure 3.4.6: 1990 final shared evaluation (combined) average mark for Advanced Mathematics 3201 by school district.*



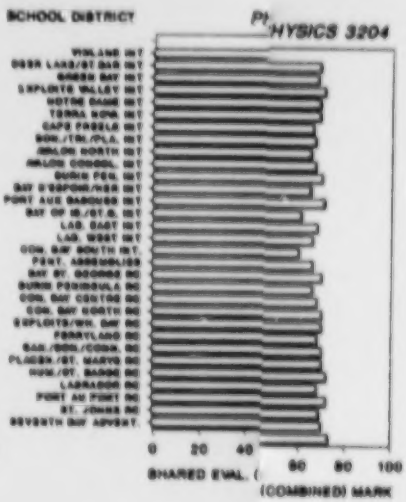
▲ *Figure 3.4.7: 1990 final shared evaluation (combined) average mark for Academic Mathematics 3203 by school district.*



▲ *Figure 3.4.8: 1990 final shared evaluation (combined) average mark for Biology 3201 by school district.*

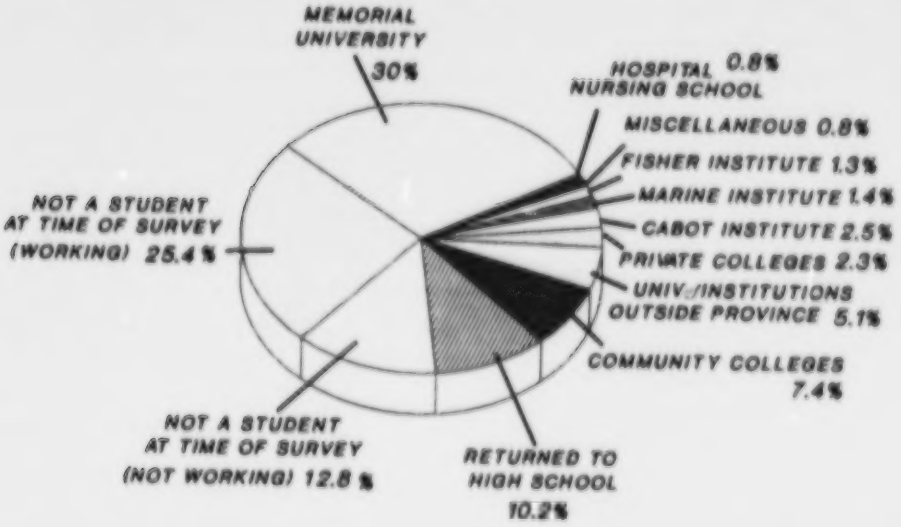


▲ *Figure 3.4.9: 1990 final shared evaluation (combined) average mark for Chemistry 3202 by school district.*



▲ *Figure 3.4.10: 1990 final shared evaluation (combined) average mark for Physics 3204 by school district.*

3.5 Where do our students go after grade 12?


MEMORIAL UNIVERSITY 30%
HOSPITAL NURSING SCHOOL 0.8%
MISCELLANEOUS 0.8%
FISHER INSTITUTE 1.3%
MARINE INSTITUTE 1.4%
CABOT INSTITUTE 2.5%
PRIVATE COLLEGES 2.3%
UNIV./INSTITUTIONS OUTSIDE PROVINCE 5.1%
COMMUNITY COLLEGES 7.4%
RETURNED TO HIGH SCHOOL 10.2%
NOT A STUDENT AT TIME OF SURVEY (NOT WORKING) 12.8 %
NOT A STUDENT AT TIME OF SURVEY (WORKING) 25.4 %

'MISCELLANEOUS' INCLUDES NIGHT SCHOOL, MILITARY COLL., COMPANY TRAINING, ETC.

SOURCE: SPAIN AND SHARPE (1990) YTLM STUDY

4. ATTITUDES AND OPINIONS

4.1 How do our elementary students view science?

In 1987 and in 1990 all grade 6 students in the Province completed a questionnaire designed to assess their attitudes towards science and the related issues. The questionnaire consisted of a series of statements about science and scientists. Students were asked to select, from a list of three, the response that best reflected their attitude. The results indicate that grade 6 students have a very positive outlook on science and that these attitudes have changed very little from 1987 to 1990. One interesting change was a marked increase in environmental awareness, indicated by Question 8.

▼ Figure 4.1.1: (below and next page) 1987 and 1990 grade 6 Elementary Science Assessment attitude scale results.

Statements	Year	Responses: (Underline = most frequent response)		
1. I like T.V. shows and magazine articles about science.		**yes**	not sure	no
	1987	68	23	9
	1990	63	24	13
2. I would like to do more science in school.		yes	**maybe**	no
	1987	27	50	22
	1990	27	48	25
3. What scientists do is dull and boring.		agree	don't know	**disagree**
	1987	5	22	72
	1990	7	23	70
4. I have tried to find out how things around the house or school work.		often	**sometimes**	never
	1987	20	71	9
	1990	18	70	12

4. ATTITUDES AND OPINIONS

Statements	Year	Responses: (Underline = most frequent response)		
5. In science classes I follow safety instructions.		**always**	sometimes	never
	1987	62	36	2
	1990	64	34	2
6. I would like to become a scientist when I grow up.		yes	maybe	**no**
	1987	9	45	46
	1990	8	41	51
7. Scientists do more harm than good.		yes	don't know	**no**
	1987	3	28	69
	1990	5	31	64
8. Saving paper, bottles, and cars for recycling so that they can be used again is a very important thing to do.		**agree**	don't know	disagree
	1987	76	18	6
	1990	94	4	2
9. I have brought materials to school for science classes even when I haven't been asked.	1987	yes	not sure	**no**
	1990	32	24	43
		30	25	45
10. I would rather be told scientific facts that try to discover them myself.	1987	agree	don't know	**disagree**
	1990	33	23	43
		32	26	42
11. Finding out how machines work is:		not interesting	**interesting**	very interesting
	1987	16	48	35
	1990	17	47	36
12. Finding out how medicines work is:	1987	not interesting	**interesting**	very interesting
	1990	14	52	33
		16	51	33

4. ATTITUDES AND OPINIONS

4.2 What are the attitudes of our intermediate students towards school?

The suggestion that the way a student feels about school life, and how satisfied he or she is within the school environment, can have an effect on academic performance has been the subject of some debate among educational researchers. Some researchers are of the opinion that those students who are satisfied and positive in their outlook on school may have higher levels of achievement. The Department has begun some preliminary work in this area to determine the attitudes and opinions of students towards their school life.

As a part of the most recent administration of the CTBS in grade 8, all students completed a survey designed to determine their attitudes towards their school experience.

Students were asked to respond to a series of statements beginning with "School is a place where...", by indicating whether they agreed or disagreed. The statements, classified on seven dimensions and the response frequencies from the survey are presented in Figure 4.2.1.

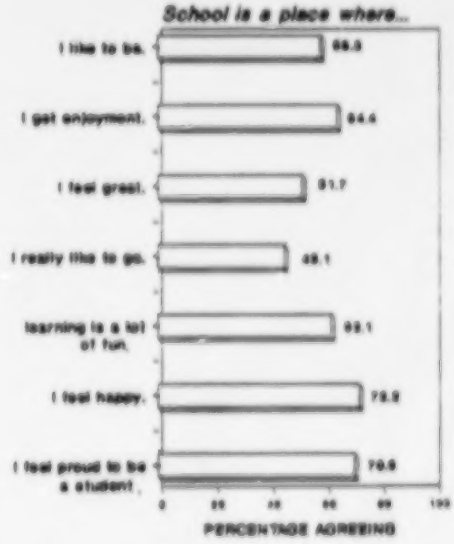
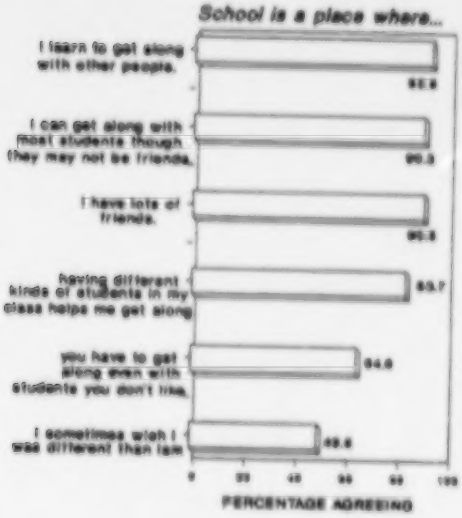


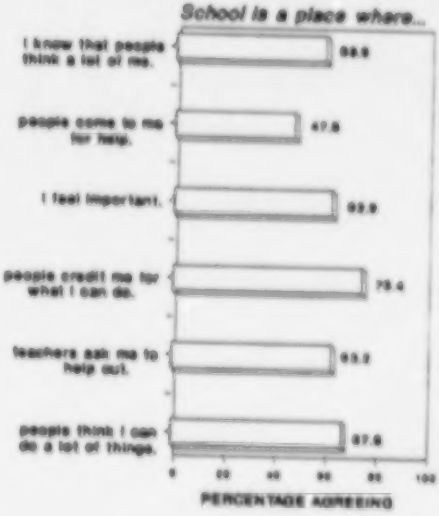
Figure 4.2.1 (above and next three pages): Results from the grade 8 survey on the quality of school life.

4. ATTITUDES AND OPINIONS

EXTENT TO WHICH STUDENT IDENTIFIES WITH THE SCHOOL

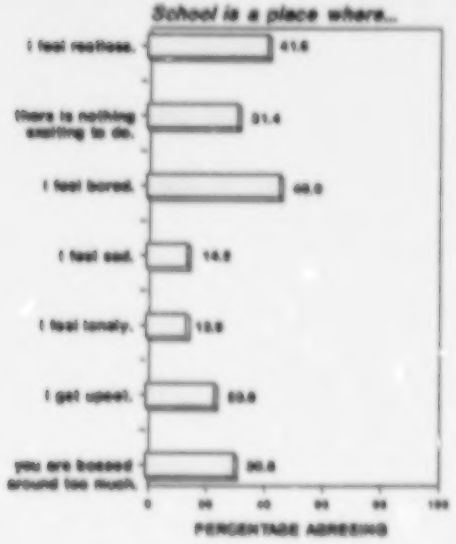

School is a place where...
I learn to get along with other people.
I can get along with most students though they may not be friends.
I have lots of friends.
having different kinds of students in my class helps me get along
you have to get along even with students you don't like.
I sometimes wish I was different than I am
PERCENTAGE AGREEING

STUDENTS' PERCEPTION OF THEIR OWN STATUS WITHIN THE SCHOOL

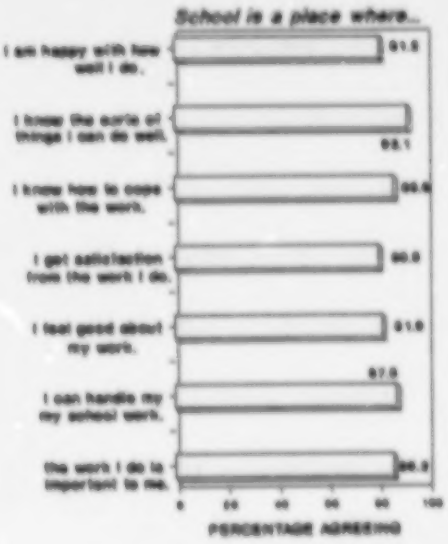

School is a place where...
I know that people think a lot of me.
people come to me for help.
I feel important.
people credit me for what I can do.
teachers ask me to help out.
people think I can do a lot of things.
PERCENTAGE AGREEING

4. ATTITUDES AND OPINIONS

STUDENT DISSATISFACTION

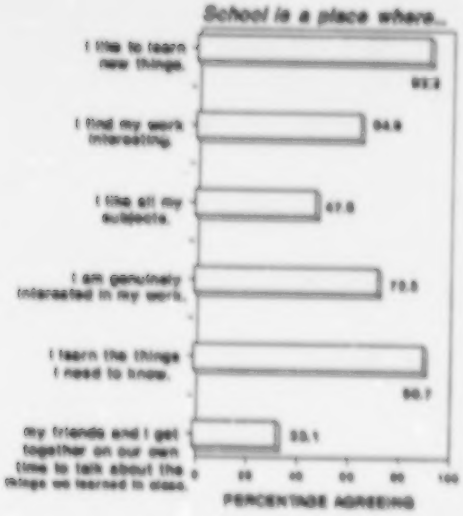


OPPORTUNITY TO LEARN

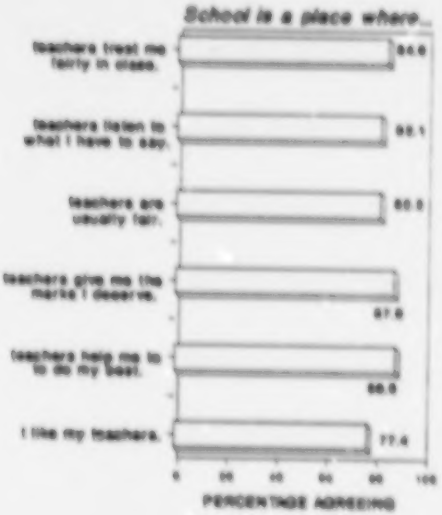


4. ATTITUDES AND OPINIONS

EXTENT TO WHICH SCHOOL IS USEFUL


School is a place where...
I like to learn new things.
I find my work interesting.
I like all my subjects.
I am genuinely interested in my work.
I learn the things I need to know.
my friends and I get together on our own time to talk about the things we learned in class.
PERCENTAGE AGREEING

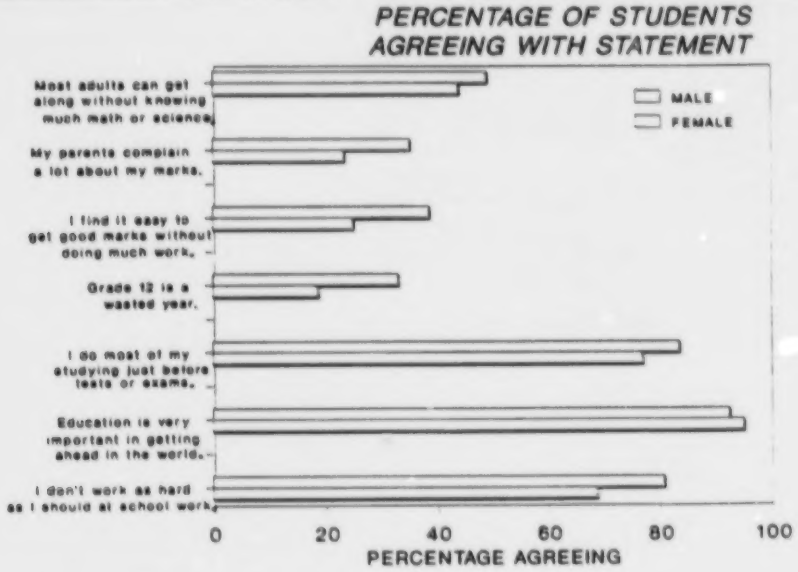
STUDENTS' PERCEPTIONS OF TEACHERS


School is a place where...
teachers treat me fairly in class.
teachers listen to what I have to say.
teachers are usually fair.
teachers give me the marks I deserve.
teachers help me to do my best.
I like my teachers.
PERCENTAGE AGREEING

4. ATTITUDES AND OPINIONS

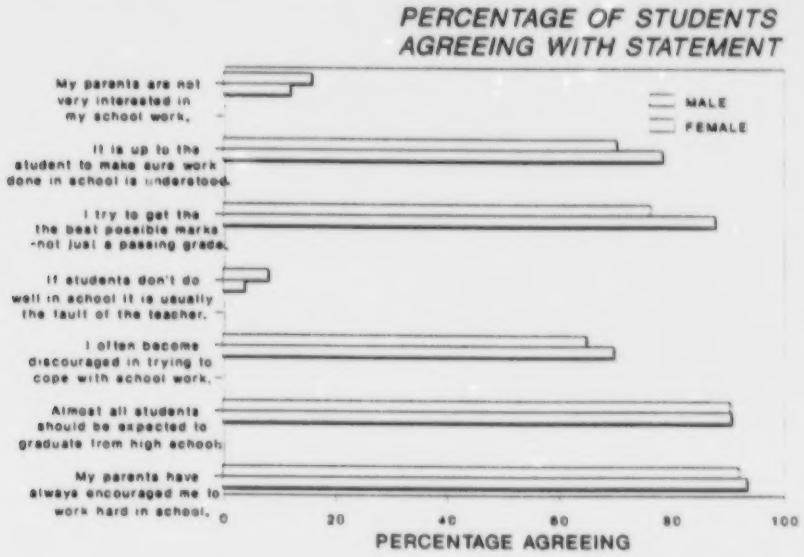
4.3 What are the attitudes of our senior students towards school?

One of the background studies for the Task Force on Mathematics and Science Education involved a survey of high school students in their graduating year. Published in May, 1989 this survey gathered information on a wide range of student attitudes and school experiences from 1,305 grade 12 students. Students were presented with a series of


PERCENTAGE OF STUDENTS AGREEING WITH STATEMENT
MALE
FEMALE
Most adults can get along without knowing much math or science.
My parents complain a lot about my marks.
I find it easy to get good marks without doing much work.
Grade 12 is a wasted year.
I do most of my studying just before tests or exams.
Education is very important in getting ahead in the world.
I don't work as hard as I should at school work.
0
20
40
60
80
100
PERCENTAGE AGREEING

▲ *Figure 4.3.1: Percentage of grade 12 students agreeing with attitude statement.*

statements and asked to respond to each on a scale which ranged from 'strongly agree' to 'strongly disagree'. The statements generally dealt with parental support, work and study support, work and study habits and the value of education. The student responses to selected statements from the survey are presented in Figure 4.3.1.


PERCENTAGE OF STUDENTS AGREEING WITH STATEMENT
My parents are not very interested in my school work.
It is up to the student to make sure work done in school is understood.
I try to get the the best possible marks -not just a passing grade.
If students don't do well in school it is usually the fault of the teacher.
I often become discouraged in trying to cope with school work.
Almost all students should be expected to graduate from high school.
My parents have always encouraged me to work hard in school.
MALE
FEMALE
0
20
40
60
80
100
PERCENTAGE AGREEING

▲ *Figure 4.3.1 (cont.): Percentage of grade 12 students agreeing with attitude statement.*

4. ATTITUDES AND OPINIONS

4.4 How does the public rate the educational system?

As an indicator of the health of the educational system, public perception is important. Because education is, in essence, society's vehicle for the delivery of academic instruction and, in part, social conventions, the public must ultimately be a judge of its effectiveness.

As a part of the work of the Task Force on Educational Finance and the Task Force on Mathematics/Science Education, a survey entitled "Public Opinion on Education: A Newfoundland Survey" was undertaken to obtain an understanding of public opinion on the structure and performance of the educational system. A sample of the provincial population 18 years of age and older was used in the survey; 1,004 people were interviewed by telephone during a two week period in the fall of 1988.

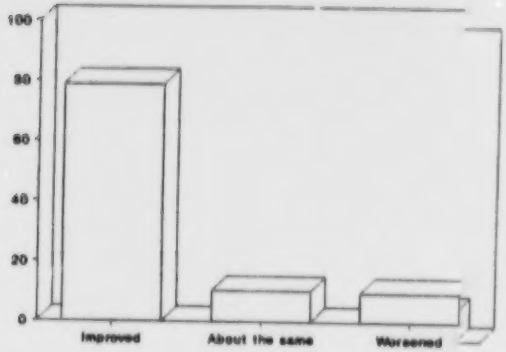
In this section the results of the survey that relate to the purpose and effectiveness of the school system, school programming, and student achievement are presented. They indicate that the Newfoundland educational system enjoys substantial support from the general public. Newfoundlanders feel that almost all of the activities of the school system are important and that over the years schools have improved. In addition, the public expressed greater confidence in the schools than in any other institution.

Opinion appears to be divided about the principal role of the school. Most of those surveyed felt that preparing students for a career was the most important purpose of the school while provision of education for its own sake was also strongly supported.

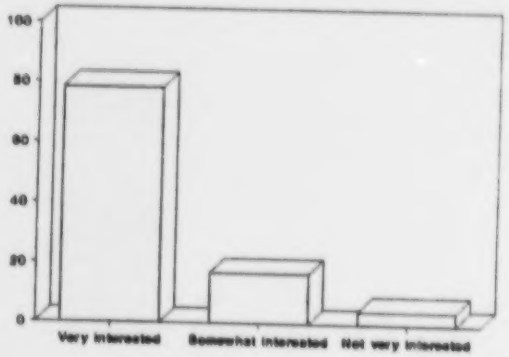
The public generally views the structure of the school system (i.e., length of school day and year) as appropriate, and there is little feeling that time spent on sports, extracurricular activities, teacher inservice and examinations is wasted.

▸ *Figure 4.4.1: Responses from public opinion survey represented graphically (following 6 pages).*

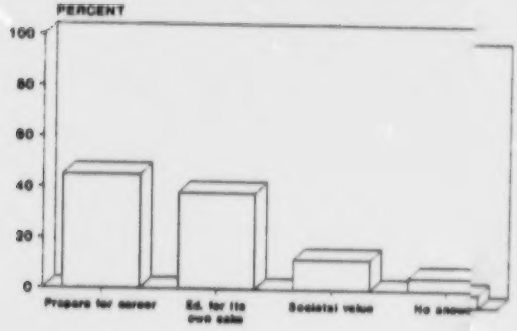
Have schools improved?



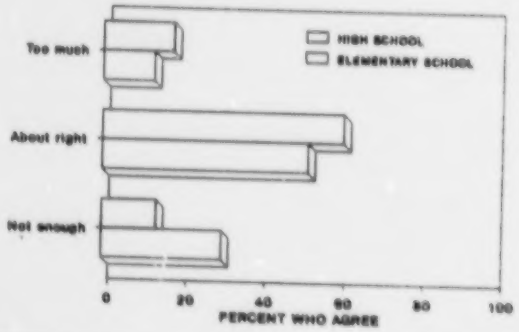
How interested are you now in education?



What do you think is the most importa
purpose of the schools?

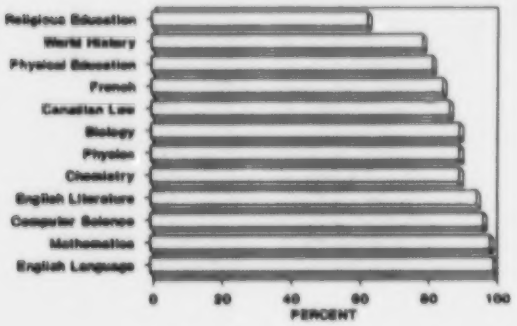


What about the amount of
homework in schools?

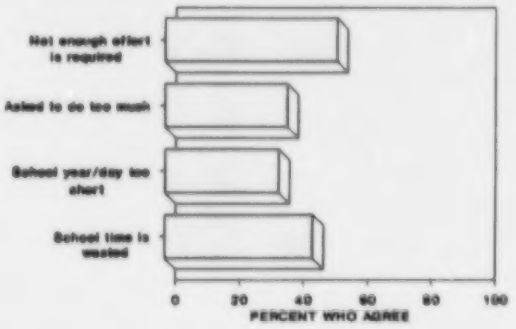


4. ATTITUDES AND OPINIONS

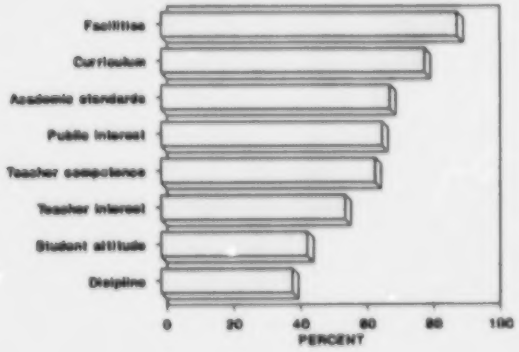
Percentage of sample considering subject to be extremely/fairly important



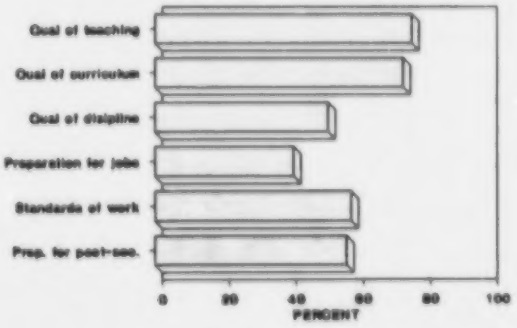
Percentage of the sample who agree with the following statements about schools



Aspects of school which have improved

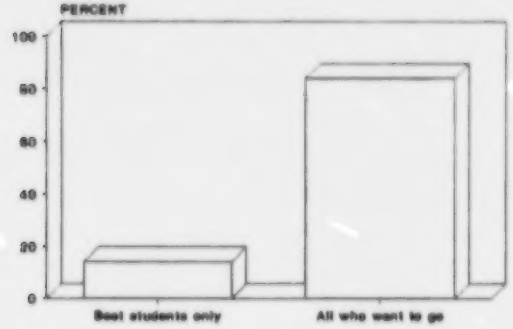


Percentage of sample awarding 'A' or 'B' to different aspects of school system.

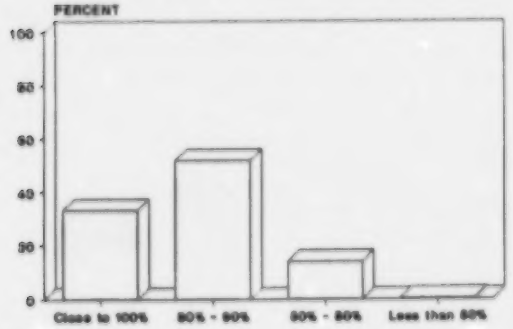


4. ATTITUDES AND OPINIONS

Should colleges and universities accept only the best students or all who apply?



What percentage of students who start school should be expected to graduate?



Highlights

- Almost 80% of those surveyed said schools had improved.
- Almost 80% of those surveyed said they were very interested in education.
- Most people thought the amount of homework given students was about right.
- The most frequent response to the question of the most important purpose of schools was "to prepare students for a career".
- English Language was the subject most people thought to be extremely or fairly important.
- Almost 80% of those surveyed awarded either an 'A' or a 'B' to the quality of teaching and the quality of the curriculum in our schools.
- Over 80% of those surveyed felt that colleges and universities should accept all students who want to attend.

GLOSSARY OF TERMS

achievement - the quality of a students work.

achievement monitoring - reviewing all test and school performance information and extracting relevant data for use in program development, school improvement, instructional strategies and decision making.

affective domain - the area of one's feelings, attitudes or emotions.

Canadian Tests of Basic Skills (CTBS) - an extensive norm-referenced, standardized test that measures student performance in several basic skill areas.

cohort - a group of individuals having a particular characteristic in common. (e.g., age, year entering school).

composite - the average score calculated based on a number of subtest scores.

criterion-referenced test - a test that measures a learners performance in absolute terms based on a given content area (e.g., based on a criterion of some set number of content items correct regardless of the performance of other students).

diagnostic test - a form of achievement designed to identify students in need of remediation.

early French immersion - a program from kindergarten to level III (grade 2) with approximately one hundred percent of instruction in French with the percentage decreasing somewhat with the introduction of Language Arts and other subjects in English.

elementary student - a student in kindergarten to grade 6.

eligible to graduate - describes a student who is attempting to complete appropriate courses in sufficient numbers to satisfy all graduation requirements.

grade-equivalent - a description of student performance on the CTBS in terms of the approximate grade level at which the performance would be average.

GLOSSARY OF TERMS

graduate - a student who has satisfied graduation requirements.

graduation - attaining 21 credits in core courses and an overall total of 36 credits; not less than 20 in levels II and III courses and not less than 9 in level III courses in a Newfoundland senior high school program.

graduation rate - 1. the number of graduates expressed as a percentage of the grade 8 cohort four years earlier adjusted for net migration. 2. the number of high school graduates expressed as a percentage of the 18-year-old (as of Dec. 31) cohort.

high school certification - the official verification of high school achievement.

inservice - short teacher training sessions

intermediate student - a student in grade 7 to grade 9.

late French immersion - a program from grade 7 to level III with approximately seventy percent instruction in French in grades 7 and 8 with the percentage decreasing somewhat as the students progress through the grade levels.

net migration - the difference in population between students leaving and students entering the Province.

NPR - national percentile rank. The term used to describe student performance on standardized tests relative to a nation-wide norming group. The NPR refers to the percentage of the norming group who scored lower on the test.

norm-referenced test - a test that produces a score that defines performance in terms of an individuals standing relative to a norming group (e.g., percentile rank).

norming group - a large representative group of individuals who complete a test and on whose scores the test is standardized. Performance of students or groups of students are expressed relative to the performance of this norming group. For example, the 50th percentile means that 50% of students in the norming group scored lower on the test.

GLOSSARY OF TERMS

participation - enroled in school

participation rate - the number of students in school expressed as a percentage of the corresponding age cohort in the total population.

performance indicator - an item of information collected at regular intervals used to track performance or achievement.

process skills - the skills associated with but not limited to observing, classifying, quantifying, communicating, inferring, predicting, formulating hypotheses, defining operationally, controlling variables, interpreting data, experimenting and formulating models.

program coordinator - a member of school district office staff who is responsible for the effective implementation of programs in one or more subjects (e.g., language arts, science, etc.).

program evaluation - a judgement on the worth of a program based on comparative information that has been collected and interpreted.

PTR - pupil-teacher ratio

public examinations - year end examinations in certain high school courses set, administered and graded by the Department of Education.

retention - the process of retaining students in school from year to year

standardized testing - the process of using uniform tests to compare achievement.

subtest - one of several smaller tests on specific areas subsumed under the Canadian Tests of Basic Skills

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